

REMARKS

Claims 1, 2 and 6 have been cancelled, without prejudice or disclaimer, thereby rendering the rejections thereof moot. Claim 3 is currently pending and is amended above. Reconsideration of the claims, entry of this Amendment After Final, and allowance are respectfully requested.

Claim 3 was rejected under 35 U.S.C. §103(a) as being unpatentable over Terada USP 6,250,174. However, there are several distinctions over Terada. First, the rotational shaft of the rotating barrel portion is not at the center of 31. As amended, claim 3 recites “a rotating barrel portion ... to rotate around a rotating shaft connected to the robot base.” The center of 31 is not connected to the robot base (10, according to the Office Action). For at least this reason, claim 3 distinguishes over Terada.

Second, because the Office Action is broadly interpreting the rotating barrel portion to be the structure holding 32 and 42 rotating about the center of 31, it is also taking a broad reading of lower arm to be AM2 and the upper arm to be 60. However, 60 is not an “arm” at all. Instead, 60 is a third speed reducer mechanism attachment base (attachment housing) attached to the distal end of AM2 (col. 3, lines 47-49). Nothing in Terada describes any “arm” at 60. There is no corresponding “upper arm.”

Third, not only is Terada missing the claimed angular range of ± 35 degrees, it actually *teaches away* from it. The Office Action acknowledged that Terada does not disclose the small gear (attached to motor 42) being within the claimed angular range of ± 35 degrees from the reference plane (actually, the small gear attached to motor 42 is shown to be at 90 degrees from

the stated reference plane). But, the Office Action asserted that it would have been obvious to rearrange the small gear anywhere around the circumferential surface of the large gear from 0 to 360 degrees, and therefore possibly falling within ± 35 degrees from the reference plane. According to the Office Action, such rearrangement would only require routine skill in the art to achieve the predictable result of driving the lower arm AM2.

However, Terada teaches the small gear (attached to motor 42) being located at 90 degrees from the asserted reference plane. The 90 degree positioning of the small gear according to the Office Action's reading of Terada *teaches away* from the reduced backlash in the circumferential direction given the claimed structural configurations that occurs when the small gear is located within the claimed angular range of ± 35 degrees from the reference plane. In fact, Fig. 3A of Terada looks similar to prior art Fig. 8 in the present specification. As discussed in the Background section of the present specification, such prior art (Fig. 8) having communication holes (at the center portions of a first and third shaft) experience undesirable backlash in the circumferential direction resulting from moments created in that prior art robot configuration when employing certain shaft reduction device mechanisms 12 (see, pages 5-7 of the present specification). As described in the present specification, the claimed angular range of ± 35 degrees minimizes the backlash in the circumferential direction that is closely tied to the moments generated in the claimed configurations (see, for example, the description of the angle β shown in Fig. 7(b), and in the specification page 9 to top of page 10, page 13 to top of page 14, and middle of page 16). Blind reliance on the mere possibility that using routine skill to yield a predictable result of driving the arm AM2 might result in the small gear being repositioned

within the claimed range does not render obvious the significance of the specific claimed range. As noted above, the 90 degree positioning of the small gear (attached to motor 42 of Terada) from the asserted reference plane actually creates undesirable backlash in the circumferential direction, and actually teaches away from the uniquely identified and claimed angular range of ± 35 degrees. For at least these reasons, the present claimed invention is not obvious over Terada.

In view of the aforementioned amendments and accompanying remarks, Applicants submit that claim 3, as herein amended, is in condition for allowance. Entry of this Amendment and allowance of this application is respectfully requested.

If the Examiner believes that this application is not now in condition for allowance, the Examiner is requested to contact Applicants' undersigned attorney to arrange for an interview to expedite the disposition of this case.

If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,
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